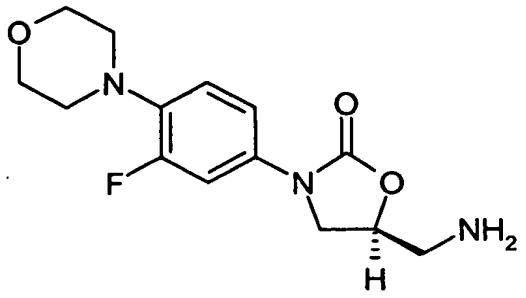
We claim:

1. A crystalline linezolid form III, characterized by an x-ray powder diffraction spectrum having peaks expressed as 2θ at about 7.6, 9.6, 13.6, 14.9, 18.2, 18.9, 21.2, 22.3, 25.6, 26.9, 27.9 and 29.9 degrees.
2. A crystalline linezolid form III as defined in claim 1, further characterized by by IR spectrum having main bands at about 3338, 1741, 1662, 1544, 1517, 1471, 1452, 1425, 1400, 1381, 1334, 1273, 1255, 1228, 1213, 1197, 1176, 1116, 1082, 1051, 937, 923, 904, 869, 825 and 756 cm^{-1}.
3. A process for preparation of linezolid form III as defined in claim 1, which comprises the step of heating linezolid in a known crystalline form or in a mixture of known crystalline forms until the known form/s are converted to form III.
4. A process according to claim 3, wherein linezolid is heated directly or linezolid suspended in a solvent is heated.
5. A process according to claim 4, wherein linezolid is heated at above about 90°C for at least 30 min.
6. A process according to claim 5, wherein linezolid is heated between 100°C and 200°C for about 2 hours to 12 hours.
7. A process according to claim 6, wherein linezolid is heated between 120°C and 140°C for about 4 hours to 10 hours.
8. A process according to claim 4, wherein linezolid suspended in toluene is heated at about boiling temperature of the solvent for about 4 hours to 10 hours.
9. A process according to claim 4, wherein linezolid suspended in xylene is heated at about boiling temperature of the solvent for about 4 hours to 10 hours.
10. A process for preparation of linezolid form III as defined in claim 1, which comprises the steps of:

a) acetylating (S)-N-[[3-[3-fluoro-4-[4-morpholinyl]phenyl]-2-oxo-5-oxazolidinyl] methyl]amine of formula in a solvent



optionally in the presence of an organic base to form linezolid;

b) optionally seeding the reaction mixture formed in step (a); and

c) isolating linezolid form III from the reaction mixture of (a) or (b);

wherein the solvent is selected from the group consisting of ethylacetate, methylacetate, propylacetate, isopropylacetate, butylacetate, acetonitrile, chloroform, methylenedichloride, benzene, toluene and xylene.

11. A process according to claim 10, wherein the process is carried out in the presence of the organic base.

12. A process according to claim 10, wherein the organic base is selected from pyridine, tri(C1-C4)alkylamine and N,N-di(C1-C3)alkylaniline.

13. A process according to claim 12, wherein the organic base is pyridine, triethylamine, N,N-diisopropyl ethylamine and N,N-dimethylaniline.

14. A process according to claim 10, wherein the process is carried out in the absence of the organic base.

15. A process according to claim 10-14, wherein the solvent is ethylacetate.

16. A process according to claim 10-15, wherein linezolid form III is isolated without seeding.

17. A process according to claim 10-15, wherein linezolid form III is isolated after seeding.

18. A process for preparation of linezolid form III as defined in claim 1, which comprises the steps of:

a) mixing linezolid with a solvent or a mixture of solvents;

b) cooling the contents to below about 15^0C;

c) optionally seeding the contents with linezolid form III;

d) stirring the contents for at least about 15 min; and

e) collecting linezolid form III crystals by filtration or centrifugation;

wherein the solvent is selected from the group consisting of toluene, xylene, chloroform methylene dichloride, acetonitrile, water, R_1-OH, R_1-CO-R_2, R_1-CO-O-R_2 and R_1-O-R_2 where R_1 and R_2 are independently C_1 to C_2 alkyl groups.

19. A process according to claim 18, wherein the solvent is selected from toluene, xylene, chloroform, methylene dichloride, acetonitrile, water, methanol, ethanol, propanol, isopropyl alcohol, tert-butyl alcohol, acetone, methyl ethyl ketone, ethylacetate, diethyl ether and methyl tert-butyl ether.
20. A process according to claim 19, wherein the solvent is isopropyl alcohol or ethyl acetate.
21. A process according to claim 20, wherein the solvent is isopropyl alcohol.
22. A process according to claim 20, wherein the solvent is ethyl acetate.
23. A process according to claim 18, wherein the contents in step (b) is cooled to 0^0C to 10^0C and stirring the contents in step (d) for about 30 min to 8 hours;
24. A pharmaceutical composition comprising linezolid form III of claim 1 and a pharmaceutically acceptable carrier or diluent.